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ABSTRACT

This experimental study examined how and to what extent native speakers of Japanese acquire syntactic properties of English reflexives. There is emphasis on the effects of the Governing Category Parameter (Wexler and Manzini, 1987), which relates to Principle A of the Binding Theory (Chomsky, 1981). It is hypothesized that second language (L2) learners are still constrained by Universal Grammar (UG), despite the influence of the parameter setting of their native language as well as the non-operation of the Subset Principle. Experimental groups consisted of 13 15- and 16-year old high school students, 14 16- and 17-year high school students, 18 17- and 18-year old high school students, and 20 18- and 19-year old college students. Twenty-two native speakers of Japanese (aged 17-18 years) and 20 native speakers of English (aged 17-19 years) served as control groups. Subjects responded to a preliminary test and a test on reflexives that used a multiple-choice grammaticality judgment task. Findings show that L2 learners transfer their L1 parameter setting and consequently make errors in the choice of antecedents for reflexives. Subjects' errors are explained if it is assumed that they transferred their L1 value for the Governing Category Parameter. Results argue against the idea that UG is not involved in L2 acquisition. Test sentences on reflexives are appended. Contains 21 references. (JP)

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The Governing Category Parameter in Second Language Acquisition[1]

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1. *Introduction*

This paper reports on an experimental study designed to examine how and to what extent native speakers of Japanese acquire syntactic properties of English reflexives. In particular, the focus will be on the effects of the Governing Category Parameter (Wexler and Manzini 1987)[2], which relates to Principle A of the Binding Theory (Chomsky 1981). The goal of this paper is to support the hypothesis that second language (L2) learners are still constrained by Universal Grammar (UG), despite the influence of the parameter setting of their native language as well as the non-operation of the Subset Principle.

Principle A of the Binding Theory states that a reflexive (an anaphor) must be bound in its governing category. In other words, a reflexive must have an antecedent within a certain domain, defined as the governing category. However, it has been suggested that the choice of governing categories is subject to parametric variation. Wexler and Manzini (1987) have proposed the Governing Category Parameter with five values, of which English is set to value (a) which is the most unmarked while Japanese and Korean are set to value (c) which is the most marked, as shown in (1).

(1) The Governing Category Parameter

α is a governing category for β iff
α is the minimal category which contains β and
a. has a subject, or
b. has an INFL, or
c. has a TNS, or
d. has an indicative TNS, or
e. has a root TNS

(Wexler and Manzini 1987:53)

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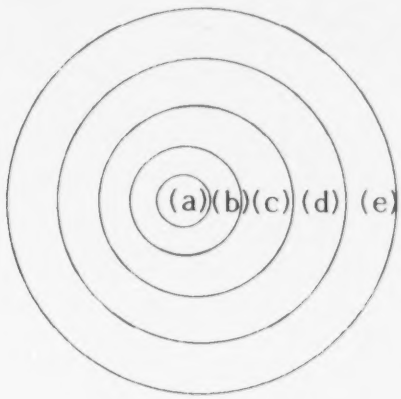
According to this parameter, languages differ with respect to how far away the antecedent can be from the reflexive. For example, in a sentence such as (2) below,

(2) [Susan knows that [Ann wants [Mary to introduce herself]]].

a type (a) language such as English allows only the NP closest to the reflexive, Mary, to be its antecedent since the minimal clause including the reflexive and the subject is the governing category in this type of language; a type (c) language such as Russian allows either Mary or Ann to be the antecedent as the governing category for this type of language is a

clause containing a finite verb and the reflexive; a type (c) language such as Japanese or Korean allows all three NPs (either Mary, Ann, or Susan) to be the antecedent since the whole sentence is the governing category for the reflexive[3]. Thus, a type (a) language is the most restrictive language in that it allows only the closest NP to the reflexive to be its antecedent; on the other hand, a type (c) language is the least restrictive language in that any NP in a sentence can be the antecedent of the reflexive[4]. The values for this parameter setting shown an 'entailment' relationship as illustrated in (3).

(3) The Governing Category Parameter



The data which motivates the smallest grammar is also compatible with any of other grammars.

In a learning situation of this parameter in first language (L1) acquisition, it has been proposed that the Subset Principle (Berwick, 1985; Wexler and Manzini, 1987) leads a child to choose the parameter value generating the smallest subset language first, and proceed beyond that value only when positive evidence for a more inclusive grammar is available. It prevents the child from hypothesizing the wrong grammar; in consequence, his or her grammar is free from errors caused by overgeneralization. A number of studies have found that children correctly bind reflexives to the local antecedent (Jakubowicz 1984; Chien and Wexler 1987; Deutsch, Koster and Koster 1986; Wexler and Chien 1985).

Assuming that the Subset Principle acts in L1 acquisition, we may then ask whether or not it operates in L2 acquisition. Studies have been conducted to examine this issue using parameters with two values, and suggest that the answer is negative where the L1 setting is marked while the L2 setting is unmarked (White 1989; Zobl 1988). L2 learners seem to transfer their superset L1 value in the acquisition of the L2.

The present study examines how native speakers of Japanese set the value of the Governing Category Parameter. An interesting point about this parameter is that it has five different values instead of two; therefore, other values in addition to those found in learners' L1 and L2 are looked into. We are concerned here with three possibilities: whether the Subset

Principle operates, whether the L1 transfer occurs, or whether learners assume neither their L1 or L2 value, but a value in between. Although the last possibility seems the least likely, such was found by Finer and Broselow (1986) among Korean learners of English. Evidence from any of these three possibilities will be compatible with the theory of UG, and thereby argue against the hypothesis that UG is not operative in L2 acquisition.

A study by Finer and Broselow is discussed in detail in the following section, followed by a presentation of my experimental study.

2. Study by Finer and Broselow (1986)

One small pilot study by Finer and Broselow (1986) investigated the Governing Category Parameter in the acquisition of English reflexives by six Korean subjects[5]. Korean is similar to Japanese in that the reflexive can be bound in the whole sentence; hence, it is a type (e) language for the Governing Category Parameter. At the time of testing, the subjects were students in an intensive English language program at a university in the United States. A picture identification task was conducted in which subjects were shown pairs of pictures. The subjects then listended to a sentence and were asked to indicate which of the two pictures was appropriate for the sentence, or whether both pictures could represent the sentence (as would be the case in Korean). The test sentences were of the following two types; each type was represented by four sentences.

(4) a. Mr. Fat thinks that Mr. Thin will paint himself.
b. Mr. Fat wants Mr. Thin to paint himself.

The results show that Korean learners assumed the local antecedent in the tensed clauses but often failed to do so in the tenseless clauses. Results are shown in (5) (Finer and Broselow 1986: Appendix B).

(5)

	Local	Non-local	Either
[Tensed Clause]			
	22	2	0
	(91.7%)	(8.3%)	(0%)
[Infinitive Clause]			
	14	9	1
	(58.3%)	(37.5%)	(4.2%)
Total	36	11	1

Finer and Broselow interpret the result as indicating that the learners have picked neither their L1 value or L2 value, but an intermediate value of the Governing Category Parameter, as it seemed that the learners distinguished [+TNS] as taking the local antecedent in the tensed clause but rejecting it in the infinitival. It would be an appropriate distinction if the target language was either type (c) or type (d) language.

However, this study raises some questions. Although Finer and Broselow argue that their subjects chose an intermediate value, Mr. Fat and Mr. Thin in sentences (4) are both conceivable antecedents for himself in Korean. If there is some strong tendency in the subjects' native language to prefer Mr. Fat in a sentence like (4b) rather than one like (4a), the choice of non-local antecedents may be traceable to the L1. Since no control group of Korean speakers was involved, we cannot confirm this possibility. In order to determine whether or not the subjects chose the intermediate value, we need a test of more complex structures such as the following[6]:

(6) [John says that [Mr. Fat wants [Mr. Thin to paint himself]]].

If L2 learners pick an intermediate value, on the basis of whether a clause was tensed or not, they should not choose John as the antecedent of himself in (6). If it turns out that they allow the non-local antecedent, John, as the antecedent, we must conclude that they are choosing not the intermediate value of the Governing Category Parameter but the largest, as in their L1.

3. *Experiment*

The main concern of the study is to investigate how learners set the value of the Governing Category Parameter where the L1 (Japanese) and the L2 (English) differ.

Three hypotheses to be considered are as follows:

1. The Subset Principle operates identically as in L1 acquisition. This predicts that Japanese learners start with correct English grammar and that there is no misinterpretation of English reflexives.
2. Japanese learners transfer their L1 parameter setting, yielding the incorrect setting for the L2 grammar. This predicts that Japanese learners bind the reflexive to the NP which is not allowed by the English grammar.
3. The Subset Principle does not operate and L1 transfer does not occur either. This predicts that learners choose neither value (a) nor value (c), they somehow pick a value in between.

It can also be hypothesized that there may be progress during the subjects' exposure to English, leading to acquisition of the correct L2 value. To ensure that the experiment would be sensitive to such progress, the subjects were selected from different grade levels.

3.1. *Method*

3.1.1. *Subjects*

Four experimental groups and two control groups were involved in the experiment.

The experimental groups consisted of students from four levels: Group 1 consisted of 13 first-year high school students (age 15~16), Group 2, of 14 second-year high school students (age 16~17), Group 3, of 18 third-year high

school students (age 17~18), and Group 4, of 20 first-year college students (age 18~19). Subjects in Groups 1~3 were students at a private 6-year secondary school located in Ibaraki, Japan. Subjects in Group 4 attended a college located in Yokohama, Japan. They were graduates from various secondary schools. Except for the level difference, each subject was considered to have a similar background with respect to the age at which they had started English lessons and the amount of exposure to English[7]. It should be emphasized that no explicit explanation with respect to the antecedent of reflexives had been given in class.

22 native speakers of Japanese (age 17~18) served as the Japanese control group while 20 native speakers of English (age 17~19) served as the English control group.

3.1.2. Materials

The test was composed of two parts: one was the preliminary test and the other was the main test on reflexives. The preliminary test was to ensure that subjects had mastered the relevant structures and vocabulary in the main test. It was also examined whether they knew that a reflexive must have its antecedent and that a pronominal cannot have its antecedent, in a simple clause sentence. All these subjects passed the preliminary test.

In the main test, a multiple-choice grammaticality judgement task was used with four types of sentences. Types A and C sentences were bi-clausal; Types B and D sentences were three-clausal. Types A and B were made up of finite clauses; Types C and D had an infinitival clause in the most embedded position. NPs appearing in each sentence were of the same gender.

(7) Type A: Tom thinks that John hates himself.
[NP1 [NP2 refl. ||
Type B: Alice knows that May thinks that June hit herself.
[NP1 [NP2 [NP3 refl. |||
Type C: June wants May to understand herself.
[NP1 [NP2 refl. ||
Type D: Tom says that Paul told Bob to introduce himself.
[NP1 [NP2 [NP3 refl. |||

Subjects were asked to indicate who himself or herself referred to in each sentence by circling one of a set of given choices. For example, five potential antecedents are presented after sentence Type A or Type C:

(8) Tom thinks that John hates himself.
a. Tom
b. John
c. either Tom or John
d. someone else: _____
e. don't know

If they considered the sentence to be ambiguous (as it would be in Japanese), they were to choose an either NP1 or NP2 type of response as (c); if they could not find an antecedent in the choices, they were to circle

someone else and to write down who it referred to in the underlined space. The reason that the someone else choice was included was that the corresponding Japanese reflexive, ***zibun***, can be interpreted as having the speaker as its antecedent. It was considered that the subjects might make this interpretation in English. When they did not understand the sentence, they were to circle don't know. For Types B and D sentences nine choices were given: NP1, NP2, NP3, either NP1 or NP2, either NP2 or NP3, either NP1 or NP3, either NP1 or NP2 or NP3, someone else, and don't know.

Each type was tested with five sentences so that a total of 20 sentences were included in the test. The subjects all received the sentences in the same order. It was an unpaced task; however, subjects were encouraged not to spend too much time on each item.

English controls and Japanese controls responded to the same sentences in English and in Japanese respectively[8].

3.2. Results

Although the experimental groups consisted of four levels of subjects, results turned out that there are no significant differences among grades (analysis of variance shows that there is no significant grade effect ($F(1,3)=0.17$ $p=0.918$) nor interaction of grade by type effect ($F(9,183)=0.55$ $p=0.839$); only type effect was significant (a multivariate test of significance shows $F(1,3)=13.766$ $p<0.000$). Therefore the results of the four grades were collapsed into one experimental group.

The responses for the whole test from the experimental group, the English control group and the Japanese control group are given in (9) (in English, NP2 is the correct response in Types A and C, and NP3 is the correct one in Types B and D; in Japanese, all types of responses are correct).

(9)

Overall responses of the experimental group and two control groups

	Control (English) n = 20	L2 learners n = 65	Control (Japanese) n = 22
[Type A]			
NP1	1	55 (17.13%)	69 (62.73%)
NP2	99	247 (76.95%)	29 (26.36%)
NP1/2	0	19 (5.92%)	11 (9.10%)
	100	321	109
[Type C]			
NP1	2	117 (36.45%)	78 (70.91%)
NP2	98	177 (55.14%)	21 (19.09%)
NP1/2	0	25 (7.79%)	11 (10.00%)
	100	319	110
[Type B]			
NP1	1	13 (4.05%)	19 (17.27%)
NP2	0	61 (19.00%)	58 (52.73%)
NP3	98	217 (67.60%)	10 (9.09%)
NP1/2	0	10 (3.12%)	5 (4.55%)
NP2/3	1	11 (3.43%)	13 (11.82%)
NP1/3	0	2 (0.62%)	0 (0%)
NP1/2/3	0	5 (1.56%)	5 (4.55%)
	100	319	110
[Type D]			
NP1	1	12 (3.74%)	14 (12.73%)
NP2	1	107 (33.33%)	66 (60.00%)
NP3	98	172 (53.58%)	12 (10.91%)
NP1/2	0	2 (0.62%)	8 (7.27%)
NP2/3	0	22 (6.85%)	5 (4.55%)
NP1/3	0	3 (0.93%)	2 (1.82%)
NP1/2/3	0	2 (0.62%)	3 (2.73%)
	100	320	110

Note: The choices of don't know and someone else have been removed.

3.2.1. Experimental Group

The most frequent response was the correct one, i.e. the local antecedent, which is NP2 in Types A and C, and NP3 in Types B and D; however, there were subjects who chose the incorrect antecedent for the reflexive, i.e. a non-local antecedent or an 'ambiguous' response, such as either NP1 or NP2, either NP1 or NP2 or NP3, etc. These errors are evidence for the non-operation of the Subset Principle which predicts that subjects will only choose local antecedents for the reflexive.

When the mean number of correct responses in each type is caluculated, (the maximum possible score is 5 for each type), the subjects performed best in Type A sentences (mean 3.800), followed by Type B (mean 3.338), Type C (mean 2.723) and Type D (mean 2.646). Differences found in the following pairs are statistically significant ($p<0.05$): Types A and B, Types A and C, Types A and D, and Types B and C. Therefore, only the difference between Types C and D is not significant.

Regarding only the two-clause structures, the L2 learners were much accurate in finite-clause sentences (Type A) than in nonfinite-clause sentences (Type C). They accepted more non-local antecedents in Type C than in Type A, which replicates Finer and Broselow's finding (1986). When the sentences were made up of three clauses (Type B and Type D), the subjects tended to make more non-local choices. They were less accurate in Type B than in Type A, which suggests that the complex structure of Type B had an effect on subjects' identification of the correct antecedent.

An comparison between Types C and D (both including infinitivals) is of interest in that no significant difference is found. Moreover, the subjects chose local antecedents more on Type B, with a three-clause tensed structure, than on Type C, with a two-clause infinitival structure, suggesting that the subjects were affected by the infinitival more than by the levels of embedding.

3.2.2. Experimental Group vs English and Japanese Controls

The experimental group's responses are distinct from those of both the English controls and the Japanese controls. That is, these L2 learners did not arrive at the correct setting of the Governing Category Parameter; but neither did their response pattern match that of the Japanese controls.

English controls overwhelmingly chose the local antecedents (98%~99%).

Japanese conrols showed a definite preference for the non-local antecedent over the local one. In Types A and C where there were two possible antecedents (either a local NP2 or a non-local NP1), there were more subjects who chose the non-local antecedent (62.73% in Type A and 70.91% in Type C) than those who chose the local antecedent (26.36% in Type A and 19.09% in Type C). In both types, about 10% of the responses indicated more than one possible antecedent. As Japanese is the most inclusive language with respect to the Governing Category Parameter, any NP can be the antecedent for the reflexive in these sentences. It follows, then, that we could expect many subjects to notice this ambiguity. However, there were not many responses which indicated that more than one antecedent was possible. It may be that native speakers (and learners) simply notice

one interpretation even though others are available. If it is the case that native speakers of Japanese do not notice ambiguity where there actually is ambiguity, we might expect the local antecedent and the non-local antecedent to be randomly chosen at an equally frequent rate. However, the non-local antecedent was chosen much more frequently than the local antecedent, suggesting that there was a preference for the non-local antecedent over the local antecedent among native speakers.

When there were three possible antecedents (Types B and D), the middle NP was chosen most frequently (52.73% in Type B and 60.00% in Type D). The local NPs were chosen least frequently (9.09% in Type B and 10.91% in Type D). In both cases, there were some subjects who found ambiguity in interpreting the antecedent; 20.91% in Type B, and 16.36% in Type D. Among these subjects, 4.55% for Type B and 2.73% for Type D responded with either NP1 or NP2 or NP3. The remainder indicated that there were two possible antecedents.

In the Japanese control group, there is no significant difference in responses between Types A and C (χ^2=2.41 $p>0.30$) nor between Types B and D (χ^2=0.075 $p>0.99$).

3.3. Discussion

As the above results show, we have obtained evidence that the Subset Principle does not operate in L2 acquisition. Our L2 learners fail to set the value of the Governing Category Parameter correctly; specifically, they set the value wider than it should be, allowing non-local antecedents for the reflexive even in tensed clauses.

Finer and Broselow suggest that learners set the Governing Category Parameter to an intermediate value, distinct from either their L1 or L2. As Finer and Broselow's subjects correctly judged Type A sentences (91.7%) to have local antecedents but were much less accurate on Type C sentences (58.3%), their explanation holds for their subjects. A more recent study by Finer and Broselow (1989) replicated this result with many more subjects. However, my subjects made a considerably larger number of mistakes in Type A sentences (23.05%). This result is inconsistent with the value Finer and Broselow assume since no non-local responses are predicted with tensed clauses. In order to account for the non-local responses of my subjects, it is necessary to assume that they have in fact adopted the widest value of the Governing Category Parameter, i.e., the value required by their L1. This accounts for the non-local responses in all four sentence types. If the subjects were choosing an intermediate value of the parameter, then they should not make errors like choosing non-local antecedents or 'ambiguous responses' in the tensed clauses.

However, what remains a mystery if they have in fact retained the widest setting is that the learners made significantly more errors in Type C sentences than in Type A; i.e., the [+tensed] clause distinction observed by Finer and Broselow has real effects, at least in two-clause sentences. This distinction is not attributable to the subjects' L1, as the Japanese controls made no significant differences in responses between Types A and C.

Generally speaking, there were more subjects who chose correct

antecedents than incorrect antecedents. I would like to emphasize this point and argue that some subjects have set the correct value of the parameter for English. For example, there were 10 subjects (out of 65) across four grade levels who responded 100% correctly. These subjects show that resetting of the parameter in the L2 is possible, which argues against the hypothesis proposed by Shachter (1988 a, b) and Bley-Vroman (1989) that UG does not operate in L2 acquisition. There were also 6 subjects who responded almost perfectly but made one error. These subjects may have been misled by their L1 in some cases although they were in the process of arriving at the correct L2 setting.

A final question still remains, namely the lack of improvement over the different grade levels that were tested. The subjects are probably relatively low-level English learners, as they have received English instruction only in a formal classroom situation in Japan. Assuming that Finer and Broselow's subjects were more advanced (in that they were exposed to Englih in the United States), it may be argued that learners move from the widest value to the narrower values as they become more proficient in English (see Zobl (1988) for similar observations).

4. Conclusion

The experimental study reported on here suggests that L2 learners transfer their L1 parameter setting, and consequently make errors in the choice of antecedents for reflexives. Thus it can be concluded that the Subset Principle did not operate properly in L2 acquisition. Errors made by my subjects varied from sentence type to sentence type; as the subjects chose a relatively high number of non-local antecedents in tensed clause sentences, the hypothesis which states that L2 learners choose an intermediate value must also be rejected. All the errors made by the subjects are explained if we assume that they transferred their L1 value for the Governing Category Parameter. It should be emphasized that my results argue against the idea that UG is not involved in L2 acquisition. None of the subjects' responses was incompatible with a grammar of a natural language. Although it is suggested that learners move from the widest setting to the narrower settings, this sequence must be subjected to further empirical investigation.

Notes

1. I would like to express my appreciation to Lydia White for her valuable comments and Yukio Otsu and the members of the MITA Psycholinguistics Circle for their suggestions on the materials of the experiment. I would also like to thank the teachers and the students at Meikei High School in Ibaraki, at the College of Foreign Studies in Yokohama, and at LaSalle College in Montreal for their cooporation in conducting the experiment. This paper is based in part on my master's thesis, submitted to McGill University, April 1989.

2. The Governing Category Parameter has been proposed for both reflexives and pronominals. However, only reflexives are considered in this paper. In

3. Furthermore, it has been suggested that Italian is a type (b) language and Icelandic is a type (d) language.

4. Actually any subject NP can be the antecedent. In addition to the Governing Category Parameter, Wexler and Manzini (1987) propose the Proper Antecedent Parameter which has two values with respect to what is allowed as the antecedent of the reflexive, i.e. subjects, or subjects and objects. The present experiment does include sentences which examine this parameter; however, I will concentrate here on the Governing Category Parameter. The Proper Antecedent Parameter is discussed in detail in Hirakawa (in preparation).

5. Finer and Broselow also examined sentences with pronouns; however, I will not discuss those results here.

6. Sentences with control verbs such as the following, as well as those with ECM (exceptional case marking) verb, are included in the experiment.
[Mr. Fat told Mr. Thin [PRO to paint himself]].

7. Subjects were asked to identify the following in the questionnaire: the age at which they started English, the amount of exposure to English, any living experience abroad, and knowledge of other languages besides English. When the data were gathered, subjects who had had early exposure to English were eliminated; thus, most subjects had started learning English at junior high school (age 12), while a few started within a year of entering junior high school (age 11). Most subjects reported that they spent some time working on English through homework assignments outside the classroom. Those who had lived outside of Japan were excluded. Regarding knowledge of other foreign languages, group 4 subjects knew either French or German besides English. No one indicated that knowledge of another language superior to that of English. Initially, 169 students participated in the experiment; however, on the basis of the criteria described above, 51 subjects were rejected because of their experience abroad, 15 because of their early exposure to English, and 38 because they failed the preliminary test.

8. For the two control groups, the <u>don't know</u> choice was omitted.

Appendix

List of test sentences on reflexives

Type A: two-clause tensed sentence

1. John said that Bill hit himself.
2. June says that Alice understands herself.
3. Tom thinks that John hates himself.
4. Ann remembers that Mary introduced herself.
5. Bob knows that Paul blames himself.

Type B: three-clause tensed sentence

1. Alice knows that May thinks that June hit herself.
2. Paul thinks that Bob believes that John understands himself.
3. May says that Ann knows that Alice hates herself.
4. Bill believes that Tom said that Paul introduced himself.
5. Mary remembers that June said that Alice blamed herself.

Type C: two-clause infinitival sentence

1. John told Bob not to hit himself.
2. June wants May to understand herself.
3. Bob wants Tom not to hate himself.
4. Mary asked Ann to introduce herself.
5. May asks Alice not to blame herself.

Type D: three-clause infinitival sentence

1. June remembers that Alice asked May not to hit herself.
2. John thinks that Bill wants Tom to understand himself.
3. Ann knows that Mary told June not to hate herself.
4. Tom says that Paul told Bob to introduce himself.
5. Bill believes that John wants Paul not to blame himself.

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